

IDENTITY OF THE SCHIZOTHORACID FISH GENUS *SCHIZOTHORAX* HECKEL, 1838, WITH CONSIDERATIONS OF THE STATUS OF *SCHIZOTHORAICHTHYS* MISRA, 1962

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ABSTRACT

The taxonomic position of the commercially important fishes of the genus *Schizothorax* Heckel, 1838, has long been in a state of uncertainty. Its systematic position is elucidated and the genus is diagnosed on the basis of its valid type-species. The nominal genera *Schizopyge* Heckel, 1848, *Opisthocheilus* Bleeker, 1860, and *Schizothoraichthys* Misra, 1962, are placed in the synonymy of *Schizothorax*. The genus *Oreinus* McClelland, 1839, is resurrected from the synonymy of *Schizothorax*. Diagnostic features of these two genera are enumerated.

INTRODUCTION

The cyprinoid fishes of the composite genus *Schizothorax* Heckel, 1838, inhabit the mountain streams usually above an altitude of 670 metres along the Himalayan range. These fishes are commonly called the "Indian Trout" and are of great economic importance as food fishes. These fishes have had a rather long uncertain taxonomic history.

The genus *Schizothorax* was established by Heckel (1838), without any type designation, to contain ten new species from Kashmir. Heckel grouped these ten species in three groups, "A", "B", "C", the first group characterised by a sucker at the chin and the latter two groups without it. This situation has led to the description of several genera. Undoubtedly much of the confusion arose due to misinterpretation of the type-species of the genus *Schizothorax*. The present paper is an attempt to reclarify the generic relationship of the fishes of the composite genus *Schizothorax* and to demonstrate that Mc-

Clelland's (1842) designation of *Schizothorax esocinus* Heckel, 1838, as the type-species of the genus *Schizothorax* Heckel is the first (and valid) designation of a type-species for the genus in accordance with Article 69 of the *International Code of Zoological Nomenclature*, 1961. The genus *Schizothoraichthys* Misra, 1962, is, therefore, a subjective synonym of *Schizothorax* Heckel from that premise.

NOMENCLATURAL HISTORY—A RETROSPECT

The genus *Schizothorax* was established by Heckel (1838), without any type designation, and it included ten new species: *plagiostomus*, *sinuatus*, *curvifrons*, *longipinnis*, *niger*, *nasus*, *hugelii*, *micropogon*, *planifrons* and *esocinus*. He grouped these ten species in three species-groups, 'A', 'B' and 'C'. In group 'A' he allocated the first two species (*plagiostomus* and *sinuatus*) which are characterised as having a suctorial mouth; in group 'B' he placed the next four listed species (*curvifrons*, *longipinnis*, *niger* and *nasus*) which are characterised by the absence of a suc-

torial mouth but in which the lips are rounded and fleshy ; and lastly in group 'C' he placed the last four listed species (*hugelii*, *micropogon*, *planifrons* and *esocinus*) which are also characterised by the absence of a suctorial mouth but in which the lips are soft and pointed.

McClelland (1839) in his monograph on Indian Cyprinidae, evidently unaware of Heckel's (1838) paper, proposed a new genus *Oreinus*, without any type designation, for these schizothoracic fishes and mentioned thereunder four species : *O. guttatus* McClelland, 1839, *O. richardsonii* (Gray, 1832), *O. maculatus* McClelland, 1839 and *O. progastus* McClelland, 1839. The original description of the genus *Oreinus* is inadequate regarding the presence or absence of the suctorial mouth in the four species described. However, the former three species described by McClelland (op. cit.) possess a suctorial mouth and hence fall in Heckel's group 'A' while the fourth species (*O. progastus*) lacks a suctorial mouth and falls in groups 'B' and 'C' (Tilak and Sinha, 1975). Gistel (1848) erroneously regarded the genus *Oreinus* as preoccupied by *Oreina* in Coleoptera and, therefore, suggested the replacement name *Englottogaster*.

McClelland (1842) reclassified these fishes into two distinct subgeneric groups : *Schizothorax* and *Oreinus*. He compared the head and jaw bones of *Schizothorax esocinus* Heckel with *S. plagiostomus* Heckel in support of this subgeneric grouping and remarked, "The first is the type of *Schizothorax proprius* and the latter of *Oreinus*" This is the first (and valid) designation of a type-species for the genus *Schizothorax* Heckel. McClelland's designation of *Schizothorax plagiostomus* Heckel as the type of the subgenus *Oreinus* McClelland is, however, invalid since *plagiostomus* was not originally included in McClelland's genus *Oreinus* vide Article 67 (e) & (h) of the Code.

Heckel (1843) restricted the genus *Schizothorax* to those species with soft lips and proposed a new genus, *Schizopyge* for the accommodation of species with the lower lip strengthened by cartilage. The genus *Schizopyge* was established without any type-species designation and in it were included the six species (*plagiostomus*, *sinuatus*, *curvifrons*, *longipinnis*, *niger* and *nasus*) of Heckel's (1838) groups 'A' and 'B'.

Bleeker (1860 : 425) proposed a new genus, *Opisthocheilus* for McClelland's '*Schizothorax proprius*' mistaking the term 'proprius' for a specific name. According to Gunther (1868), McClelland 'never described a fish under such a name, but distinguished a subgenus '*Schizothorax proprius*' from Heckel's genus *Schizothorax*.' The connotation 'proprius' evidently means 'proper' (Tilak and Sinha, 1975), the term 'proprius' having been used earlier also by McClelland (1839 : 274) for the genus *Cyprinus*. The genus *Opisthocheilus* is hence a junior objective synonym of the genus *Schizothorax* McClelland, 1842 *sensu stricto*.

Bleeker (1863) equated his *Opisthocheilus* with *Schizothorax* Heckel and designated *Schizothorax plagiostomus* Heckel as the type-species of the latter genus. Bleeker (op. cit.) also recognized the genus *Oreinus* McClelland and designated *Oreinus guttatus* as its type species. This is the first valid designation of a type-species of the genus *Oreinus*. Further, Bleeker (op.cit) designated *Schizothorax curvifrons* Heckel as the type-species of the genus *Schizopyge* Heckel.

Gunther (1868) and Day (1877) recognised the genus *Oreinus* McClelland for section 'A' and the genus *Schizothorax* Heckel for sections 'B' and 'C' of Heckel's composite genus *Schizothorax*. This generic arrangement was widely used till recently (Chaudhuri, 1913 ; Tchang, 1931 ; Hora, 1933, 1934, 1935, 1937 ; Mukerji, 1936 ; Fang, 1936 ; Shaw and Shebbeare,

1937 ; Misra, 1949 ; Vijayalakshman, 1952 ; Fowler and Steinitz, 1956 ; Silas, 1960 ; Jayaram and Mujumdar, 1964 ; Mirza, 1966 ; Das and Subla, 1966).

Another type-species designation for the genus *Oreinus* McClelland was made by Jordan (1919 : 195) who selected *Oreinus guttatus* McClelland, 1839. Jordan (op cit : 192) recognised Bleeker's (1863) designation of *Schizothorax plagiostomus* Heckel as the type species of the genus *Schizothorax* and consequently considered the latter genus a probable senior synonym of the genus *Oreinus*.

Chu (1935) pointed out that according to Bleeker's restriction (*Nat. Tijd. Dierk*, 1, p. 196, 1863) the name *Schizopyge* Heckel should be used in place of "*Schizothorax*" of authors and *Schizothorax* Heckel should replace the name *Oreinus* of McClelland. Mukerji (1936 : 333) agreed with the statement but was in favour, in view of the general application, to conserve the names *Schizothorax* and *Oreinus* in their hithertofore accepted sense.

Misra (1962) recognised Bleeker's (1863) designation of *Schizothorax plagiostomus* Heckel, 1838, as the type-species of the genus *Schizothorax* Heckel, 1838, and *Oreinus guttatus* McClelland, 1839, as the type-species of the genus *Oreinus* McClelland, 1839, and consequently considered *Oreinus* as a junior synonym of *Schizothorax* since the type-species of both these genera are characterised as having a suctorial disc. Misra (op. cit.) established the genus *Schizothoraichthys* with *Schizothorax esocinus* Heckel, 1838, as its type-species, to accommodate 'the species without suctorial disc which were put under the genus *Schizothorax* by Heckel and which are now left without any generic name.' Recent workers (Saksena, 1968 ; Menon, 1971, 1974 ; Tilak and Sinha, 1975 ; Jhingran, 1975) followed Misra's generic arrangement for these fishes. Tilak and Sinha (op. cit.) reviewed the nomenclatural

history of the genus *Schizothorax* Heckel and in an attempt to justify Misra's disposition of these fishes, remarked, "At the same time, in 1863, he (Bleeker) equated *Opisthocheilus* with *Schizothorax* Heckel and designated *Schizothorax plagiostomus* as its type-species (by subsequent designation). *S. plagiostomus* Heckel is a species with a sucker at the chin. Bleeker (1863) has also recognised *Oreinus* McClelland and fixed *Oreinus guttatus* as its type-species (by subsequent designation). Thus Bleeker (1863), without understanding the differences between the fishes with a sucker at the chin and those without it, put the whole situation in a big confusion. He even appears to have disregarded McClelland (1842) who drew a clear distinction between the two sub-generic groups. However, the fixation of the type-species of the genus *Schizothorax* Heckel (*Schizothorax plagiostomus*) as done by Bleeker in 1863 has to be accepted." These authors did not invoke the use of the International Commission on Zoological Nomenclature plenary powers, but, as interpreted herein, should have done so. If Misra's contention was to be regarded as correct, this would necessitate changing the concept of the genus *Schizothorax* from that accepted since 1868, and further accepting a new name for the genus currently known as *Schizothorax*. Das and Subla (1966) had earlier expressed doubt regarding the validity of the genus *Schizothoraichthys* Misra, 1962. Since Bleeker's (1863) designation of *Schizothorax plagiostomus* Heckel, 1838, as the type-species of the genus *Schizothorax* is a subsequent designation, it is invalid in accordance with Article 69 of the Code.

The synonymy of the genera *Schizothorax* and *Oreinus* have, therefore, been drawn out below so as to clearly depict their taxonomic positions and the diagnostic features of these two genera are given.

Genus *Schizothorax* Heckel

Schizothorax Heckel, 1838, *Fische aus Caschmir* :
11 (type species : *Schizothorax esocinus*)

Heckel, 1838. designated by McClelland (1842).

Schizopyge Heckel, 1843, *Reisen in Europa, Asian und Africa* : 285 (type species : *Schizothorax curvifrons* Heckel, 1838, designated by Bleeker (1863)).

Opisotcheilus Bleeker, 1860, *Naturk. Tijdschr. Nederl. Indie*, 20 : 425 (type species : *Opisotcheilus propius* McClelland by original designation).

Schizothoracichthys Misra, 1962, *Rec Indian Mus.*, 57 : 48 (type species : *Schizothorax esocinus* Heckel, 1838, by original designation).

Diagnosis : Abdomen rounded. Mouth arched, inferior or subinferior ; lower lip non-suctorial ; lower labial fold interrupted or entire in the middle. Two pairs of barbels, a rostral and maxillary pair. Pharyngeal teeth in three rows, 5-3-2/2-3-5. Dorsal fin short, arising opposite the ventral fin, with a strong or moderate spine, serrated posteriorly. Scales minute ; lepidosis irregular.

The following species are presently recognised from the faunal limits of India : *S. esocinus* Heckel, *S. curvifrons* Heckel, *S. longipinnis* Heckel, *S. niger* Heckel, *S. nasus* Heckel, *S. hugelii* Heckel, *S. micropogon* Heckel, *S. planifrons* Heckel and *S. progastus* (McClelland).

Genus *Oreinus* McClelland

Oreinus McClelland, 1839, *Asiatic Res.*, Calcutta 19 (2) : 273 (type species : *Oreinus guttatus* McClelland, 1839 (= *Oreinus richardsonii* Gray, 1832) designated by Bleeker (1863)).

Englottogaster Gistel, 1848, *Naturg. Thierr. höhere Schulen*, Stuttgart : X (Substitute name for *Oreinus* allegedly preoccupied in Coleoptera).

Diagnosis : Abdomen rounded. Mouth inferior, margin of lower jaw having a firm and hard horny covering (thickest internally) and a thick lower lip with a free posterior edge, forming a sucker. Two pairs of barbels, a rostral and maxillary pair. Pharyngeal teeth in three rows, 5-3-2/2-3-5. Dorsal fin short, arising opposite the ventral fin ; dorsal fin spine strong, serrated posteriorly. Scales minute ; lepidosis irregular.

Two species are presently recognised from the faunal limits of India : *O. richardsonii* (Gray) and *O. kumoanensis* (Menon, 1971). Further, Saxsena (1968) cites *Oreinus nigromarginalis* Das & Subla, 1966, a specific name not given in the reference cited by Saxsena (op. cit.) nor am I able to locate the original reference to this species.

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